

		National Defence Défense Nationale	Back to the DID List
DATA ITEM DESCRIPTION - DESCRIPTION DE DONNÉES			
1. TITLE – TITRE		2. IDENTIFICATION NUMBER - NUMÉRO D'IDENTIFICATION	
AMP and Level 2 and 3 BCRs		DID 13.9.1	
3. DESCRIPTION / PURPOSE – DESCRIPTION / OBJET			
To provide preparation and format instructions for development of Asset Management Plans (AMPs) and Building Condition Reports (BCRs)			
4. APPROVAL DATE DATE D'APPROBATION	5. OFFICE OF PRIMARY INTEREST (OPI) BUREAU DE PREMIERE RESPONSABILITÉ (BPR)		6. GIDEP APPLICABLE D'ÉCHANGE DE DONNÉES PERTINENT
November 2020	NWSO Technical Authority (TA)		N/A
7. APPLICATION / INTERRELATIONSHIP – APPLICATION / INTERDÉPENDANCE			
CDRL- 13.19.4 and SOW paragraph 13.19.4 refer. This DID contains the format and content preparation instructions for the data generated under the work tasks described in the NWS O&M SOW.			
8. ORIGINATOR - AUTEUR		9. APPLICABLE FORMS - FORMULES PERTINENTES	
NWSO TA		NIL	
10. PREPARATION INSTRUCTIONS – INSTRUCTIONS SUR LA PRÉSENTATION DES DONNÉES			
10.1 Source Document NWS O&M SOW Section 13.19.4. 10.2 Content and Format 10.3 Preparation of AMPs Prepare AMPs as requested by the RP-TA, providing the following information. <u>Scope and Context</u> The AMP is a detailed business and economic plan that generally outlines and recommends a management strategy for the asset. This comprehensive business plan is completed and usually updated for the asset on a five-year cycle. The AMP provides an analysis of various investment and strategic options and presents information and data that DND uses to determine and rank the financial and investment merits of the asset from the medium to long-term. The AMP provides a measure of the asset's overall performance and provides DND with building data and intelligence to properly direct the asset to meet its investment objectives. The Building Condition Report (BCR) is the primary document that that provide the base technical and financial analysis used to develop the AMP document and strategic options for the asset. <u>Primary Requirements</u> <ul style="list-style-type: none"> Undertake the work as set out in the SOW as further elaborated in AWRs Prepare or update existing AMPs. 			

- Provide financial and non-financial analyses, including schedules of feasible options.
- Demonstrate the recommended solution through appropriately detailed analyses over a 25-year investment horizon period.

Additional Requirements

- Prepare the AMP using Microsoft Office applications.
- Provide relevant appendices, spreadsheets, cost estimates, tables and schedules associated with recommendations and conclusions with the final deliverable.

Executive Summary

The Executive Summary provides an overview of the asset and summarizes essential information regarding the asset flowing from the option analysis, the Building Condition Report (BCR). It outlines conclusions and recommendations and identifies required actions to realize the asset's Highest and Best Use. Limit the Executive Summary to three pages.

Required Content

Describe the asset's location, when it was built, its floor area and its main use. Comment on the principal findings and provide a summary conclusion from the individual sections of the AMP, including:

A description of the physical condition of the asset, identifying major problems or deficiencies.

A narrative describing the operational, functional and financial performance of the facility.

Identification of key issues and conclusions pertaining to asset performance.

The total amount of forecast major repair and capital spending required for each year over the upcoming five-year period.

Identification of the more costly and urgent projects required over forecast period.

A summary of the conclusions to the Options Analysis leading to a final recommendation setting out an appropriate strategy for the asset, including a Financial Analysis Table providing the recommended investment strategy).

Conclude the Executive Summary with a signature block (Table 3).

Section 1: Asset Description

This section provides an overview, in table format, of the salient facts concerning the asset, sufficient to provide the reader with a general understanding of the asset's key characteristics.

Required Content

Complete Table 1-1.

Section 2: Asset Condition

This sections identifies key findings concerning the physical condition of the asset, summarized from the BCR.

Required Content

Provide the following:

A general narrative summarizing the overall physical condition of the facility relating to and based on the Facility Condition Index (FCI) rating (Poor, Fair, Good, Excellent). Include a brief summary of where the asset is in its lifecycle (i.e. Beginning, Mid-life, Second Mid-life Renewal, etc.) based on the findings in the BCR.

A list and brief descriptions of recent major component replacements and renovations undertaken during the preceding 10 years.

Specifics on the condition of the asset's major systems and components (e.g. Architectural and Structural, Conveying Systems, Mechanical Systems, Electrical Systems).

A summary of a five- and 30-year repair and capital work plan in a graphical representation.

A conclusion, identifying the most costly and urgent projects required for the upcoming five-year period.

An evaluation of the 30-year work plan for the asset proposed in the BCR, in terms of its completeness in responding to asset deficiencies and recapitalization requirements, as well as whether it is realistic in terms of proposed funding and implementation prospects. If required as a result of the evaluation, modify the BCR work plan to recommend a Program of Work. Indicate the total cost of the Program of Work over five and 25 years, with annual spending requirements by year for the first five years of the Program of Work.

Section 3: Operational Performance

This section indicates the extent to which the asset complies with applicable codes and standards, and its ability to do so, including requirements associated with health and safety, accessibility, environmental standards and energy efficiency. Comment on the daily operations and performance of the asset and how major issues are addressed and resolved.

Operational performance is frequently verified through Operational Compliance Audits that are generally commented on in the BCR. Indicate the date when these audits were successfully completed, and discuss deficiencies, by completing the Operational Compliance Checklist in Table 3-1.

Required Content

Provide a narrative in the same order as the Operational Compliance Checklist, including:

A discussion of areas of non-compliance with codes or standards identified in the operational compliance checklist. Describe deficiencies and remedial action that may be required focusing exclusively on areas of non-compliance.

A detailed discussion of important operational performance issues to complete Table 3-2.

Definition of Facility Management Indicators to complete Table 3-3, making use of the content of the BCR, the ABP.

A conclusion indicating the overall level of operational performance, highlighting areas for further action, and identifying project costs needed to bring the asset into code compliance or to otherwise improve its operating performance. Ensure that these projects have been incorporated in the Program of Work.

Section 6: Financial Performance

This section provides an examination of the financial performance of the asset based on its current use functional performance and overall asset design, with a focus on cost performance.

Required Content

An assessment of operating cost performance:

Assess the financial performance of the facility with respect to its operating costs in a table format .

A summary of forecast / potential financial performance:

A five-year financial forecast;

A 25-year financial forecast; and

A conclusion indicating whether the asset represents good investment value, and how financial performance could be improved.

Section 7: Option Analysis

This section provides the results of an examination of the full range of options for the asset and a recommended approach for the asset that is realistic, and provides for meeting program requirements in an effective and least-cost manner. Guidance on the preparation of the Option Analysis is set out in Attachment 2 to Appendix A.

Required Content

Provide the following:

A summary of key points concerning the evolving role of the asset from the Strategic Context section.

An analysis of Strengths, Weaknesses, Opportunities and Threats facing the asset (SWOT Analysis), using point form.

Identify and discuss factors or scenarios driving the options analysis. What are the program needs that may influence future options for the asset?

An evaluation of the suitability of each available option. The evaluation of options can frequently be qualitative, as options may be able to be eliminated as a result of readily identifiable shortcomings. However, in some situations, it may be appropriate to undertake a more detailed analysis of available options, including a financial analysis and a risk assessment.

A conclusion identifying the preferred option, its associated rationale and identification of related implications or risks .

Section 8: Summary and Recommendations

This section provides a summary of the AMP Summary as a standalone document. It includes a brief summary of important findings and recommendations from the AMP, the Appraisal Report and the BCR.

Required Content

Provide the following:

A recommended investment strategy / management plan for the asset. Include the recommendations of each section of the AMP with respect to improving the asset's operational and financial performance.

An implementation plan covering actions required to carry out the AMP strategy, including a recommended Program of Work with associated priorities, the timing of actions, planning steps, required approvals, and the organizational entities responsible for implementation.

Comments on the urgency of required actions.

Attachments

Provide detailed information to support the analysis and conclusions presented in the sections of the AMP described above. Use of appendices for detailed information enables the main document to be more concise and user friendly.

Required Content

Provide the following:

The site plan, floor plans and picture of facility.

The 25-year Program of Work.

The Financial Analysis.

The Options Analysis, including supporting spreadsheets outlining the analysis of each of the options considered.

10.4 Preparation of BCRs

Prepare BCRs as requested by the RP-TA, in accordance with the following instructions.

Primary Requirements

- Undertake the work as set out in the SOW as further elaborated in the AWRs.

Additional Requirements

- Prepare the BCR using an industry standard tool.
- Recommend acceptance of the final BCR.
- Provide relevant appendices, spreadsheets, cost estimates, tables and schedules associated with recommendations and conclusions with the final deliverable.

RS 1.0 Background Information to be reviewed

RS 1.1 Context

Building Condition Reports provide the detailed technical information on which the Asset Management Plans are based. While the condition of the majority of DND assets has been assessed in the past, the data in the Building Condition Reports and subsequently, the Asset Management Plans, must be updated every 5 years to ensure their accuracy and to provide best support possible to managers making capital and repair investment decisions.

RS 1.2 Automated Process Using Industry-Standard Tools

BCR Tool . to increase the usefulness and standardization of building condition data, will be populated with existing BCR data. Asset BCRs are kept current as yearly inflation updates to project costs and project completion information is entered. System generated reports permit the planning of projects at the portfolio level with the potential for cost savings by taking advantage of the economies of scale.

RS 1.3 BCR Tool Surveys

Gathering BCR data using industry standard BCR Tool Surveys

RS 2.0 General Requirements

In general, a BCR is an assessment of the condition of the components and recommended actions required to maintain the asset in operating condition during the next 30 years. The BCR covers every component on the site and in the asset organized as follows:

- Site related components;
- Architectural related components/systems
- Heritage components/systems and Character Defining Elements (CDE) where applicable in designated buildings;
- Structural components/systems;
- Horizontal and vertical transportation;
- Mechanical components/systems, and;
- Electrical components/systems

The BCR Tool software covers systems on-site and, in the asset, organized according to UniFormat II as follows:

- A – Substructure
- B – Shell
- C – Interiors
- D – Services
- E – Equipment and Furnishings
- F – Special Construction and Demolition
- G – Building Site work

The objective of a level 2 Building Condition Report is to investigate various building and site improvement factors including:

- Component condition and assessment of remaining life,
- Condition of character defining elements for designated heritage buildings,
- Equipment obsolescence,
- Design problems and deficiencies that adversely affect operation and maintenance activities,
- Impact of compliance with Treasury Board Secretariat temperature, humidity and ventilation standards,
- Workstation density maximums imposed by design limitations,

- Compliance with the latest edition / revision of applicable standards & codes (including, but not limited to: Health, Fire, Life Safety Codes, National Building Code, Electrical Safety Program)
- Compliance with local by-laws,
- Effective age and remaining economic life of building components (Effective age must consider implications for a designated asset and Character Defining Elements in particular),
- Confirmation of regulatory testing,
- The SOW, specific to a call-up against the standing offer, will detail the extent of work required and will indicate specific event considerations that the consultant/assessor will incorporate into the 30-year plan (E.g. heritage designation). The level of effort required could be as small as one of the 'stand alone' task, up to and including investigations required for a particular BCR.

The intent of the level 2 BCR is to identify the events required to bring an asset to Class B (BOMA definition) level of accommodation and to maintain that level throughout a 30-year planning horizon. If an asset is at the Class A (BOMA definition) level of accommodation then the level to be maintained during the 30-year planning horizon is Class A (BOMA definition).

The concept of full life cycle costing for the facility is the basis for the development of the long-term capital plan. The 30-year capital plan should indicate the optimal timing / grouping of recommended events in order to minimize overall cost and tenant disruption.

RS 2.1 Thirty-year window of Capital and Repair Requirements

RS 2.2 Component/Systems List

BCR Tool uses Uniformat II, Level-3 as determined by the American Society for Testing and Materials (ASTM) to define the list of available building systems. These systems establish the level of detail required for a BCR. Once chosen for a particular asset, each system is included in the BCR Tool Survey. System data, including lifetime and projected costs to maintain building condition, are associated with the relevant system.

RS 2.3 Requirement Structure

The BCR Tool Requirement subclasses are the same for both Capital and Repair. Utilize Requirement Classifications that reflect the primary justification of the purpose of the requirement (e.g. if the purpose of requirement is to remove asbestos, then the Regulatory Haz-Mat classification would be used, if the purpose of the requirement is to repair a system, then the Integrity-Reliability classification would be used). Examples to aid in classification are provided in the Appendix to this document and within the structure:

The requirement structure is:

- Integrity
 - o Lifecycle - Systems that are approaching or have exceeded their useful life (e.g. a 25-year old chiller that is approaching the end of its useful life and is recommended to be replaced within the next 5 years; a 15-year-old membrane roof that is prematurely aged and showing signs of wear and leaking).
 - o Reliability - Systems that are not working as designed and/or cannot be depended upon, but have not yet exceeded their useful life (e.g. a recently installed mechanical control that is not operating properly or functioning in an unpredictable manner; breaches in the roof membrane or deteriorated window sealants).

Optimization

- o Abandoned - Systems that have been abandoned in place (e.g. old cooling tower abandoned on the roof; old oil storage tank abandoned in the basement).
- o Capacity - Problems with a System's ability to meet current demand (e.g. heating equipment that cannot adequately cover its intended area).
- o Energy - Conditions that adversely affect energy use (e.g. single-pane windows, lack of pipe insulation).
- o Maintenance - Systems that require routine maintenance (e.g. recalibration of thermostats, cleaning of ducts, cyclical painting, other aesthetic considerations).
- o Mission - Systems that do not meet the critical standards of the organization, as per guidelines provided by the client (e.g. a facility needs to be operational on a 24/7 basis, therefore redundancy/backup components need to be added; required additions/alterations associated with the conversion of a classroom facility into a dormitory; client driven security vulnerabilities).
- o Sustainability - Improvements where Systems potentially have a sustainable opportunity, other than Energy based (e.g. water conservation measures; use of building materials and resources based on sustainable procurement and with recycled/bio-based content; improvement of indoor environmental quality and considerations that reduce the impact of the building and its operations on the surrounding site).
- o Technological Improvements - Conditions that need to be made modern to meet current technological standards (e.g. pneumatic to DDC; non-energy-based upgrades).
- Regulatory

- o Accessibility - Conditions that violate accessibility guidelines (e.g. non-accessible building entrances, plumbing fixtures, or door hardware).
- o Building Code - Conditions that violate applicable federal, provincial, regional and municipal regulatory requirements (e.g. lack of backflow protection, insufficient ventilation).
- o HazMat - Regulatory issues associated with Asbestos, Lead, PCB, and other situations in which hazardous materials are known or suspected to be present in the Asset (e.g. suspected asbestos pipe insulation or floor tiles).
- o Life Safety - Conditions that pose an immediate danger to human life or safety (e.g. blocked emergency egress, dead-end corridors, damaged and/or non-functional fire protection or emergency Systems).

The majority of requirements are usually classified in 'Integrity' and a sub classification of Reliability or 'Lifecycle'.

RS 3.0 Component/System Related Requirements

This section describes the work that the consultant/assessor will perform at the component level when producing a BCR.

RS 3.1 Validation of the Component/Systems List

The BCR Tool Survey for assets contains a system list specific to its building and site improvements. Validate the existing system list to ensure the BCR will cover the entire asset. Conduct a visual inspection at the building and site to confirm the existence of each system in the list. Use the master system list in BCR Tool Survey as a guide to establishing the granularity to which the building will be broken down. Update the list and delete systems in this list that are not found in the building. Correct misclassifications (e.g. B1021 Flat Roof Construction instead of B1022 Pitched Roof Construction). Add systems in the building that are missing from the building system.

RS 3.2 Component/System Name

Each system has an associated system-level description field. If a narrative already exists, review and modify it to ensure it reflects the current situation. This description field has a character limitation of 4,000 characters therefore narratives should be brief, concise and current to reflect BCR assessment.

RS 3.3 Component/System Details

Review and update component details associated with each component listed, including:

- Expected life;
- Component/System Cost (if a replacement event is included);
- Quantity (quantities associated to the components/systems covered in the 30-year horizon);
- Measurement units to use for the quantity field above; and
- Last Major Action Year.

The definition and requirements for each field are listed below:

RS 3.3.1 Expected Life Span

The expected life span of a component is an estimate of the number of years a component will last, from brand new, before it must be replaced or rehabilitated. See section 2.0 regarding Heritage designated buildings.

RS 3.3.2 Last Major Action Year

The last major action year for a component is the last year the component was replaced or renovated to the point where its` expected life is now as long as if it were new. Update this field for each component in the asset as part of the BCR. If the last major action year is not known, determine it by subtracting the expected life for that component from the year the next replacement or renewal renovation is recommended. If the component has never been replaced, use the year of construction as the last major action year for that component.

RS 3.3.3 Measurement Units

Select the appropriate measurement unit for the quantity number entered in the field above. Selections required by the costing tool are:

Bhp	Boiler capacity is specified in Boiler Horse Power
cool tons	Air Handling Unit cooling capacity is specified in cool tons
ea.	Number of units (e.g. doors, fixtures, etc.)
flts	The number of flights of stairs in the building
HP	The total horsepower of the HVAC pumps
level	The number of levels an escalator rises/drops
ltr	Size of tanks in liters
m	Length of a component in meters
m2	Area of a component in square meters
pt.	Total number of sensing and control points in a control system
seat	Total number of seats (e.g. bleachers)

- ea. The number of stops (floors) an elevator services
- sum Total cost of the unit (e.g. traffic control system)

If the correct units are missing from the BCR Tool data, refer to the correct units in the Component/System description narrative field.

RS 3.3.4 Quantity (of the component/system)

Determine the quantity of the element or component/system in the building for replacement cost estimating purposes. Measure distance, area and volume using metric units as the basis for calculating component replacement costs.

RS3.3.5 Component/System Cost

Populate the Replacement Cost of each system in the survey based on its quantity and unit cost.

RS 3.4 Component Narratives/System Descriptions

Provide a system-level description field Each system has an associated with. If a narrative already exists, review and modify it to ensure it reflects the current situation. This description field has a character limitation of 4,000 characters therefore narratives should be brief, concise and current to reflect BCR assessment.

RS 3.4.1 Component/System Description

The description of the component or system should include:

- Component/System name
- Year installed
- Basic Description (i.e. description of wall assembly, window, roof type, make/model of equipment)
- The location of the component/system
- The quality of the component/system (excellent, good, average, fair, poor)
- The capacity or performance of the component/system
- The replacement cost
- Identification of Character Defining Elements

This information is to be recorded against the component or system and carried forward in the executive summary.

RS 3.4.2 Component/System Condition and Anticipated Replacement Date

This narrative field should include:

- An assessment of the impact of each of the component's deficiencies on the component's remaining life
- Quality and service conditions that will lengthen or shorten the component's expected life span, for example:
 - i. Below average quality component
 - ii. Inappropriate component or system design
 - iii. No longer supported by the supplier
 - iv. Inadequate maintenance
 - v. Inadequate performance
 - vi. Damage from external sources
- The rationale for component's condition rating (Excellent, Good, Average, Fair or Poor).
- The year the component/system was last replaced and establishment of the next replacement or rehabilitation date.
- An overview of the component's/system's condition and the recommendations/predictions for future repair and replacement projects. (Details of particularly damaged components/systems should be provided in the format of the matrix below in section 3.6 which can be captured in BCR Tool as a PDF file attachment with a reference flag within the event description narrative field)

RS 3.4.3 BCR Condition Narrative

If, during the last Building Performance Review (BPR), one or more components were considered operationally unsatisfactory, the BPR team will have given each of those component an 'unsatisfactory' status and filled in this narrative field describing the reason why. The consultant/assessor will review this narrative field for each 'unsatisfactory' component and recommend and cost a course of action to rectify the problem described in the form of an event. Undertake discussions with the Property Management team to ensure the consultant/assessor fully understands the problem described for each 'unsatisfactory' component. Include conservation advice from conservation professionals for designated buildings.

RS 3.5 Component/System Inspection and the Component Evaluation Criteria List

Inspect and identify deficiencies for each component and provide notes/narratives to elaborate and otherwise further explain the deficiency.

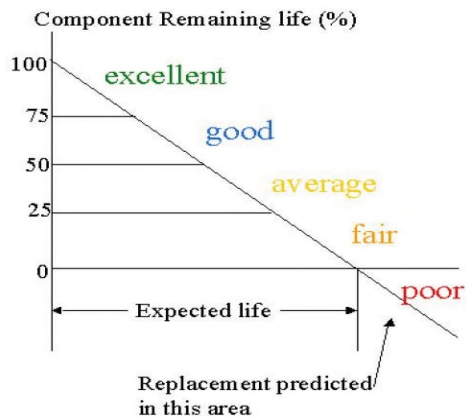
RS 3.6 Establishing Component/System Condition

Determine the condition of a component and its remaining life, considering the following factors:

- Age of the component
- Character Defining Elements in Designated Buildings
- Component expected life
- Identified deficiencies
- The component service conditions including duty cycles, weather conditions, hours of operation.
- Maintenance practices
- Obsolescence
- Operational or functional performance problems

Following its inspection, determined the condition of each component as 'excellent', 'good', 'average', 'fair' or 'poor'. For purposes of consistency, each of these five possible conditions is related to the remaining life of a component divided by its expected or theoretical life expressed as a percentage. The following chart can illustrate how this works at a basic level.

Note: Link percentages at the boundaries between two conditions to the condition below the boundary. (E.g. 50% of life remaining would imply average condition).



Note: Even though the component's/system condition rating has been established as (Good, Fair, Poor). Certain Components/Systems require additional scrutiny to a **level 4** based on the industry standard Uniformat II – ASTM. The greater the matrix score the better the condition so use this additional scrutiny to re-confirm the system status before placing the narrative in the system status description.

Total Number of Score Available Per Component/System is 1 to 10 - Weight Factor Range is 1 to 15 Maximum Total Weighted Points 1200

- ▶ Between 700 and 1200 Points = Good Condition
- ▶ Between 400 and 700 Points = Fair Condition
- ▶ Less than 400 Points = Poor Condition

Refer to the Criteria set out in in Attachment 4.

Criteria	Description	Score	Weight Factor	Total Weighted Points
1% of Remaining economic life	Less than 25% of L/C = 10 Between 26% and 50% of L/C = 9 Between 51% and 75% of L/C = 7 Between 76% and 100 % of L/C = 4 Exceeded 100% of LC = 3 Exceeded 125 % of LC = 2 Exceeded 150% of LC = 1		3	

2	Equipment parts obsolescence	Parts available = 10 Parts are becoming rare = 7 Parts can be custom made = 3 Parts not available = 1	4	
3	No longer supported by the supplier	Still supported by supplier = 10 Supplier support diminishing = 7 Alternate support available = 3 No Support = 1	4	
4	Design problems & deficiencies (DP&D)	No (DP&D) = 10 Minor (DP&D) = 7 Major (DP&D) = 3 (DP&D) cannot be fixed = 1	4	
5	Operational performance problems	No operational problems = 10 Minor operational problems = 7	5	
		Major operational problems = 3 Doesn't meet requirements = 1		
6	Functional performance problems	No functional problems = 10 Minor functional problems = 7 Major functional problems = 3 Doesn't meet requirements = 1	5	
7	Code Compliance	Code compliant = 10 Minor code problems = 7 Major code problems = 3 Immediate H/S code problems = 1	5	
8	Confirmation of regulatory testing,	Yes = 10 No = 1	6	
9	Maintenance practices	Reactive = 1 Scheduled PM = 5 Enhanced PM = 10	6	
10	Design problems and deficiencies that affect O&M activities	Yes = 1 Yes minor = 5 No = 10	4	

11	The component in service conditions	Low service conditions = 10 Medium service conditions = 7 High service conditions = 3 Extreme service conditions = 1		3	
12	State of repair or damage	Poor needs attention = 1 Poor = 3 Fair needs attention = 5 Fair = 7 Good = 9 Excellent = 10		10	
13	Aesthetic Appearance	Pleasing = 10 Not pleasing = 1		3	
14	Environmental (releases, GHG emissions, energy)	Low risk = 10 Med risk = 5 High risk = 1		3	
15	Demand Capacity	Yes met = 10 Pressured = 5 Not met = 1		5	
16	Industrial History of Unit	Yes, history of Problems = 1 Average history of problems = 5 No history of problems = 10		10	
17	History of Leaks, Failures, shutdowns (events)	Yes = 1 No = 10		10	
18	More Reliable Technology Exists	Yes = 0 No = 10		2	
19	Provincial or Federal Policy Drivers	Yes = 1 No = 10		4	

20	Consultants Condition Judgment (Knowledge & Experience)	Overall condition poor = 1 Overall condition fair = 5 Overall condition good = 10		15	
				TOTAL	

RS 3.6.1 Establishing Service Condition factors for Components/systems.

1. Once the component condition is established to suit the basic overview, indicate address additional specifics on the Component Conditions to be able to minimize the Risk to the Management and Operations of the Portfolio by the Owner Investor.

Specifically evaluating assessed components of the building for Operational Criticality :

Take the completed BCR Asset Tracker & reports of the building to create as follows:

- Focus on the Unifomat level 4 list of components for this exercise and review the narratives and component/system conditions on the Asset Tracker spreadsheets.
- 2. Assess the condition of the building component/systems as determined under the category of 'Event / Requirement Listings', then indicate the component's/system's remaining life. There are hundreds of sub-components that affect the Criticality status of the building so ensure to group the categories to suit the 'ASTM Unifomat II classification for Building Elements' . Establish the sub-elements as per the ASTM Standard and NISD standard structures.
- 3. Review the 'Priorities', and 'action required' timelines in the Narratives as well as the available supporting studies provided by the Asset in the format of a Criticality assessment as described below.
- 4. Provide each line to represent each of the required components to be assessed. Additional sub-categories may be deemed necessary as the process begins.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Unifomat Level 4 – Required Component review headings.															
Unifomat identification number															

Create the summary chart for inclusion in the final criticality assessment report.

- Provide from left to right 15 columns each representing 1 year of the 15-year life cycle span.
- Where each row (system component) intersects a year, we will insert a value which represents the systems/ component condition.(The condition value will comprise two factors)
- These factors applied together consider health and safety/continuity of operation/ asset threat and regulatory compliance.
- Good condition (score 5)
- Low risk of failure (score 4)
- Medium risk – but near end of life – less than 5 years remaining (score 3)
- Critical condition – high risk of failure (score 2)
- System failed (score 1)
- Produce a heat map broken down into three distinct horizons (i.e. 1-5 years, 6-10 years, 11-15 years) per high level system where each distinct horizon will be colour coded to reflect the following as applicable:
 - 1 Black = Already failed and needs immediate action
 - 2 Red = Imminent Timeline Failure
 - 3 Yellow = Deferred Intermediate Timeline Failure
 - 4 Green = Deferred Long-Term Timeline Failure
- Once this chart is generated, the conditions as colour coded need to be rated in terms of criticality within the component category. This determines the true criticality relative to the overall Asset condition. Multiply the rating factor on the chart by the specific condition rating described below to get a new criticality value.
- The final criticality assessment value provides for the highest criticality of renewals and condition of the building elements. The heat map will now have a change in colour coding for the building systems on the 15-year planning horizon where 0 to 30 points are in red

for the highest criticality of renewal, 31 to 70 points in yellow for medium, and 71 to 100 points in green for low.

- scoring of the major component categories will comprise of 4 scoring categories at a maximum of 25 points each under the four factors listed above. Health and safety, Continuity of operation, Asset threat and Regulatory compliance.
- (4 x 25points = 100 points maximum).

Health and Safety (Criterion 4 – Health & Safety)

Description	Condition Rating
No exposure to hazards or injuries.	5
No exposure to hazards under normal operation.	4
Minor exposure to hazards and/or non-disabling injury.	3
Significant exposure to hazards and/or non-disabling injury.	2
Definite exposure to hazards capable of causing disabling injury or death. Immediate action required.	1

Continuity of Operations (Criterion 2 – Strategy)

Description	Condition Rating
Failure of component/system can be corrected with minimal effect upon the users of the asset. Repairs can be undertaken without significant disruption to workspace during normal working hours.	5
Failure of the component/system can be corrected with minimal effect upon the users of the asset during normal working hours, however users may experience disruptive noise and activity in their general vicinity for an extended period.	4
Failure of the component/system cannot be corrected without evacuating a portion of the building for a brief period.	3
Failure of the component/system cannot be corrected without evacuating a portion of the building for an extended period.	2
Failure of the component/system cannot be corrected without evacuating the entire asset for an extended period.	1

Threat to Asset (Criterion 2 – Strategy)

Description	Condition Rating
No exposure to hazards. Condition of the component/system has no relationship to the physical integrity of the asset.	5

Minor exposure to hazards under normal operations.	4
Some exposure to hazards. Failure of the component/system may have deleterious, localized effect on the physical integrity of the asset.	3
Major exposure to hazards.	2
Extreme exposure to hazards. Failure of the component/system has immediate and profound effect on the overall physical integrity of the asset.	1

Regulatory Compliance (Criterion 2 – Strategy)	
Description	Condition Rating
Component/system is fully compliant with current/fire codes and standards.	5
Component/system is partially compliant with applicable codes and standards.	4
Component/system has been identified as not compliant with applicable codes and standards.	3
Component/system is not compliant with applicable codes and standards, and has been identified as a life safety concern by authorities having jurisdiction.	2
Component/system is not compliant with applicable codes and standards, and authorities having jurisdiction have identified it as a major life safety threat. Immediate action is required.	1

The Consultants assigned to each Asset is already looking at the components and the rest of remaining life so there is an advantage to target a baseline of the findings to a common standard. This standard needs to be expressed by means of an FCI calculation for three of the six Criteria under the ‘National Capital Project Priority Ranking Policy’.

Based on a fiscally tight environment where the renewal needs are to be tiered according to levels of **Criticality**, the three Criteria of six identified in the National Capital Ranking Policy that directly impact Asset Planning Criticality are:

Criterion 2 – Strategy Criterion 3 – Timing Criterion 4 – Health & Safety

Asset assessments in the NCA will focus on **Criterion 4 ‘Health and Safety’** which by default will also address **‘Threat to the Asset and Continuity of Operations’**. The Life Cycle timeline in our Criticality (Stand Alone) assessment scope of work will give the timing within a 15-year window and allow for integrated planning strategy according to the Asset Tracker and Criticality Heat Map.

RS 3.7 Required Component/System Photographs

A good photograph is worth a thousand words. To give a better understanding of the asset, the consultant/assessor will always include as many photographs (up to 10) as it takes to adequately describe the condition of the component being reviewed.

Provide at a minimum photographs of every component/system in the entire Asset. For Components/Systems with multiple types, one photograph is inadequate. E.g. One photo for an asset with stone and brick and other masonry cladding is not acceptable. Provide at least one photo for each type of cladding material which can be sub-categories to the Component/System.

These photograph files, as well as those specified elsewhere in this document, must be:

- .JPG or .JPEG files.
- Less than 2 MB.

BCR Tool Auditor includes advanced Photo Management functionality allowing users to link multiple photos to an Asset, System, and Requirements. Users have the option to link photos directly from a mobile device camera (iPad only at this time) or select from a camera roll or photo folder. Position the subject matter in the photo as such that it is close enough to clearly present the required details of the component and the issue, if any, yet show surrounding detail so that the photo location can be confirmed.

RS 4.0 Event Related Requirements

Once the process of evaluating a component's condition has been completed, Record the recommended replacement or repair events using the BCR Tool.

When generating a report in the BCR TOOL application, the user can check a box that will cause virtual events to be included in the report. Virtual cycling will automatically repeat the repair/replacement events entered for one complete lifecycle for each component. The number entered into the component data field labeled 'expected life' determines the component lifecycle. PWGSC has decided to make use of this feature. Therefore, the consultant/assessor will only enter one lifecycle (expected life) worth of repair events and replacement events into the BCR Tool.

RS 4.1 Event Details

Validate and enter the following event details utilizing the BCR Tool for every event.

RS 4.1.1 Brief Event Description

This description is used in BCR Tool reports and should therefore be as short and concise as possible, preferably no more than 40 characters. (e.g. replace roof, repair boiler, etc.)

RS 4.1.2 Event Narratives

There are three event narratives associated with each event. Each of these narratives is listed below along with a description of the content required for each.

Event Description

Enter the following information in each event description:

- A full description of what is to be done (include advice from conservation consultants and conservators as required for Character Defining Elements)
- The results expected from event implementation
- If the DND costing tool is not used to calculate component replacement events, describe why and provide costing breakdown.

Event Justification and Strategy

Enter the following information in the narrative field:

- Any pertinent background information
- Rational for why the event is required.
- List of what deficiencies is the event correcting or enhancement is it providing.
- Indicate opportunities for potential for cost savings, increased performance, changes in function, reduction in energy consumption, greater code compliance, and increased accessibility.
- Identify Character Defining Elements of heritage designated buildings and seek advice from a heritage professional
- How the event should be carried out; steps required
- Indicate if it would be better to wait for a particular time of year?
- Will the tenants be disrupted?
- Describe the precautions that should be adhered to, to minimize impact on the tenant and building operations.
- List other events that should be grouped with this event and implemented together.

Implication of Event Deferral (Risks)

Provide answers to the following questions in the event narrative:

- What will be the impact on asset operations if the event is delayed?
- Will there be additional degradation (cost) if the event is delayed?
- Does it involve a Character Defining Element(s)?
- What is the potential impact of other components if the event is delayed?
- What is the impact on the tenants' health and working environment if the event is delayed?
- What is the impact on other related events/projects?

RS 4.1.3 Current Event Year

Provide the recommended year of event implementation in the report.

RS 4.1.4 Estimated Event Cost

Review and document the condition ratings and remaining life replacement costs and the total estimated event cost at a class D

accuracy, in current year dollars as follows;

Apply the Consultant's cost data experience with previous similar projects and develop budget estimations using R.S. Means. If the project is deemed critical, the NCA reserves the right to have a Cost Consultant mandatory in the contract for third party verifications that are acceptable to the Crown. At a minimum, include the following in the budget: demolition, mobilization, material, labour, soft costs such as engineering, project management and contingency as applicable to the event or project. Customize the event budget breakdown percentages to reflect the scope of work of each event so that they are typically in the following ranges:

Labour and materials – 60% Contingency – 15%

Soft costs – 25%

Determine Current Replacement Value (CRV) and event costs based on different approaches. The CRV for the building is the total amount of expenditure in current dollars required to replace the asset and meet the current acceptable standards of construction, and comply with regulatory requirements. The CRV at the component level is an approximate cost contribution at component or system level to the total CRV. The event costs are event scope specific and cannot be compared with the CRV. The renewal budget includes an inflation of two (2%) percent which is added per year from 2015 to 2043 which is based on the past ten (10) year historic average. The budget typically should not include applicable taxes.

RS 4.2 Requirement Descriptions

Provide a description of each requirement using the BCR Tool, including the following information:

- A full description of what is to be done;
- The expected results;
- The justification and strategy, including the following details:
 - o Rationale for why the event is required.
 - o List of what deficiencies the event correcting or enhancement is it providing.
 - o Indicate opportunities for potential for cost savings, increased performance, changes in function, reduction in energy consumption, greater code compliance, and increased accessibility.
 - o How the event should be carried out / steps required.
 - o Indicate if it would be better to wait for a particular time of year.
 - o Identify potential tenant disruptions.
 - o Describe the precautions that should be adhered to, to minimize impact on the tenant and building operations.
 - o List other requirements that should be grouped with this event and implemented together.

RS 4.2.1 Implication of Requirement Deferral

Provide answers to the following questions in the BCR Tool:

- What will be the impact on asset operations if the event is delayed?
- Will there be additional degradation (cost) if the event is delayed?
- What is the potential impact of other systems if the event is delayed?
- What is the impact on the tenant's health and working environment if the event is delayed?
- What is the impact on other related requirements/projects?

RS 4.2.2 Closing A Completed Requirement

Indicate as 'Close' requirements that are 100% complete. When reviewing an overdue/deferred Requirement, do not indicate as closed requirements that have not been 100% completed and resolved. In the case of overdue/deferred Requirements where the details are inaccurate, modify the details. Deleting an overdue/deferred Requirement and creating a new one skews FCI and related calculations resulting in a false picture of asset condition. The assessor can split a requirement to show that 30% of the requirement has been completed thus leaving 70% open.

RS 4.3 Required Event Photographs

Provide additional photographs in addition to those required under section X.X, if:

- There is visual evidence of damage or wear.
- There is a visually evident health or safety risk.
- There is a visually evident code or directive compliance issue.
- The photograph will help explain the requirement implementation strategy.
- Visual evidence is required to explain the requirement implementation strategy.

RS 5.0 Asset Data Requirements as they relate to BCR Tool

The asset data requirements for a BCR are described in this section.

RS 5.2 Asset Details

Indicate the 'Date of Most Recent Assessment' in the BCR Tool.

RS 5.2.2 Asset Photographs

Include a recent photograph of the front of the building and a description, including building name and location. Refer to section 3.7 for photograph specifications.

RS 5.2.3 Asset Narratives

Note that BCR Tool narrative fields are limited to 4,000 characters, which equates to around one page of text. In cases where existing narratives exceed this limitation, the content will be truncated; however, its full content will be available in a document attached to the asset for first time review and update in BCR Tool . All narrative fields must be updated when updating a BCR in BCR Tool .

RS 5.2.3.1 BCR Project Team and Documents

Include the following information:

- Brief introduction identifying initiation details and requested scope.
- List of participants (inspection team members, asset staff, others), including: name, discipline, company, date of site visit.
- Limitations on liability.
- List of documents reviewed.
- List of drawings reviewed.
- List of other information reviewed.
- List of reference documents (codes, policies, standards, etc.).

RS 5.2.3.2 Building History

Include the following information:

- Original design information, including facility type/use, size (storeys/levels), date and designer.
- Original construction information, including completion date, contractor, and supervision.
- Subsequent addition(s) information, including dates, type/use, size (storeys/levels), designer, contractor, supervision, and date(s).
- Major alteration/renovation information, including dates and brief scope(s).
- Changes in the facility use and/or occupancy.
- Heritage status.

RS 5.2.3.3 BCR Executive Summary

Include the following information:

- A brief summary of the asset, including: municipal address, name (if applicable), current use, and heritage status.
- A brief summary of the building, including: location/orientation on the site, number of storeys above grade, other storeys (i.e. below grade and/or rooftop penthouses), construction (frame and exterior walls), and gross floor area.
- A brief summary of the site, including: size, surrounding features (streets, development, etc.), paved vehicle areas, and other significant site improvements.
- List of Federal tenants.
- List of private sector and 3rd party tenants.
- Custodial department.
- Property management provider(s).
- An overall assessment of the condition of the asset and provide an estimate of its remaining service life.

RS 5.2.3.4 Design Parameters & Deficiencies – Current & Future

Review and modify as necessary preamble for design/performance – provided.

If a Functionality/Serviceability assessment has been carried out since the last BCR was completed:

- Review the identified serviceability issues.
- Provide under this heading in the BCR Tool Survey a written overview describing the issues reviewed and the recommended corrective

actions.

- Create and enter Requirements into the BCR Survey for each recommended corrective action.

If a Functionality/Serviceability Assessment has not been completed, consider elements that received an unsatisfactory rating during the last BPR as the source of serviceability issues:

- Review the identified serviceability issues for each unsatisfactory element.
- Provide under this heading in the BCR Survey a written overview describing the issues reviewed and the recommended corrective actions.
- Create and enter Requirements into the BCR Tool Survey for each recommended corrective action.

See 5.2.16 Building Performance Review for instructions on how to process the information provided and what to add to this narrative field.

For the parameters listed below, the assessor will compare the maximum capacities against those required for the current workstation density, and any workstation density proposed for the future and make recommendations to overcome physical or code limiting factors (excluding floor area).

If a workstation density for the future is not provided, use the maximum number possible. The maximum possible number of workstations can be calculated by dividing the usable area of the building by the target area allowed per workstation, as per the PWGSC Workplace 2.0 fit-up standard.

The parameters are:

Maximum floor loading;

- Maximum heating capacity;
- Maximum cooling capacity;
- Maximum electrical capacity;
- Elevator capacities;
- Washroom capacities;
- Emergency exit stairwell size.

RS 5.2.3.5 *Overview of Architectural & Structure Condition*

Provide overviews of the condition and recommendations for the various architectural systems (substructure, shell, interiors, and equipment and fittings), including for each:

- General description.
- General overall condition and performance.
- Any notable exceptions in condition and/or performance.
- Any significant (high cost, health/safety, etc.) elements identified for correction in the short-term.
- General long-term outlook.

RS 5.2.3.6 *Overview Site Condition*

Provide overviews of the condition and recommendations for the various site systems (site elements, landscaping, and pavements), including for each:

- General description.
- General overall condition and performance.
- Any notable exceptions in condition and/or performance.
- Any significant (high cost, health/safety, etc.) elements identified for correction in the short-term.
- General long-term outlook.

RS 5.2.3.7 *Overview of Vertical & Horizontal Transportation Condition* Provide an overview of the condition and recommendations for the vertical/horizon transportation systems, including:

- General description.
- General overall condition and performance.
- Any notable exceptions in condition and/or performance.
- Any significant (high cost, health/safety, etc.) elements identified for correction in the short-term.
- General long-term outlook.

RS 5.2.3.8 *Overview of Mechanical Systems Condition*

Provide an overview of the condition and recommendations for the mechanical systems, including:

- General description.
- General overall condition and performance.
- Any notable exceptions in condition and/or performance.
- Any significant (high cost, health/safety, etc.) elements identified for correction in the short-term.
- General long-term outlook.

RS 5.2.3.9 Overview of Electrical Systems Condition

Provide an overview of the condition and recommendations for the electrical systems, including:

- General description.
- General overall condition and performance.
- Any notable exceptions in condition and/or performance.
- Any significant (high cost, health/safety, etc.) elements identified for correction in the short-term.
- General long-term outlook.

RS 5.2.3.10 Compliance with Air Quality Targets

Provide an overview of the indoor air quality in regard to the 'TBS Occupational Health and Safety Directive, Appendix A – Temperature and Humidity Targets' and 'RBP Standard MD 15000 Mechanical Environmental Standard for Federal Office Buildings, Appendix B – Indoor Air Quality, including:

- Preamble for IAQ – provided.
- Identification of IAQ assessments completed previously.
- Identification of previously-identified IAQ issues.
- Recommendations for action if necessary - create and enter Requirements into the BCR Tool Survey for recommended corrective action.

RS 5.2.3.11 Regulatory Testing Confirmation

Provide an overview of the on-site regulatory testing and inspection, including:

- Preamble for regulatory testing and inspection – provided.
- List of regulatory testing and inspection records found and reviewed on-site.
- List of regulatory testing and inspection records not found on-site, and reason why.
- List of regulatory testing and inspection not performed, and reason why.
- Recommendations for remedial action if necessary and the reasons for omission.

RS 5.2.3.12 Compliance with Accessibility Standards

Provide an overview of the status and level of accessibility, including:

- Preamble for accessibility in Federal Crown property – provided.
- Compliance levels as determined in the most recently completed accessibility audit.
- List of identified areas of non-compliance.
- List of recorded exemptions.
- List of upgrades to accessibility implemented since completion of the last audit.
- Recommendations for remedial action if necessary - create and enter events into the BCR Tool Survey for each recommended corrective action.

The overview of the standard is to be preceded by a detailed review as described below to be entered in the Accessibility Audit template.

Complete Accessibility Audits, as requested, using templates provided by the Departmental Representative, by comparing the current asset configuration against the requirements specified by the 2006 Treasury Board Accessibility Standard for Real Property policy available at the web site listed below.

Accessibility Requirements of the Treasury Board Accessibility Standard for Real Property or subsequent editions

<http://www.tbs-sct.gc.ca/pol/doc-eng.aspx?id=12044§ion=text>

CAN CSA B651-95 Barrier Free Design or CAN CSA B651-04 Accessible Design for the Built Environment Standards (confirm

with DND the technical standard that is to be referenced prior to commencement of the Building Condition Report). Enter the recommended requirements against the relevant systems in the BCR Tool once the template has been completed. Indicate the recommended event implementation year and Class 'C' cost estimates, including the soft costs as specified in the Requirement costing section. Enter other Requirement details and the two narrative descriptions as previously described. An additional Requirement detail indicating the policy year (1995, 2004 or 2012) driving the event may need to be entered. Deliver the completed template to the DR in Microsoft Word 2000 or more recent format.

RS 5.2.3.13 Overview of Seismic Screening

Provide an overview of the seismic status, including:

- Preamble for seismic resistance in laboratory buildings – provided.
- Identification of previously completed seismic assessment (initial screening and/or subsequent evaluation).
- Identification of the subject area and its seismic rating
- Recommendations for action if necessary - create and enter events into the BCR Tool Survey for recommended corrective action.

TOR Scope description for Seismic Screenings

Carry out seismic screenings in accordance with NRC's 'Manual for Screening of Buildings for Seismic Investigation'. Include a site review, a review of available existing building drawings/reports and the submission of the completed NRC Seismic Screening Form. The form is to contain a photograph of the building, relevant sketch (es) and a completed comments section indicating notable observations and qualifications used in determining the Structural Priority Index (SPI) score. Comments by consultants should not be limited by the space available on the form. It is recommended that a separate write-up describing relevant observations during the review be included. If, for the specific type of building, significant changes have been made in the seismic provisions of the new 2005 National Building Code of Canada, provide a brief paragraph describing the nature of the changes in the comments. Seal the Seismic Screening Form with the provincially-registered professional engineer's (structural) stamp.

Context of Screening Results

The SPI score indicates deviation by contributing seismic factors to current seismic construction practices. It is not a detailed assessment and does not identify the level of specific building vulnerabilities. NRC suggests SPI scores be used for evaluation and planning purposes on the following basis:

- less than 10: low priority for further evaluation;
- between 10 and 20: medium priority for further evaluation;
- between 20 and 30: high priority for further evaluation;
- higher than 30: can be considered an exceptional risk.

Note: It is understood that NRC's 'Manual for Screening of Buildings for Seismic Investigation' was based on NBCC 1990. Should a new screening document based on NBCC 2005 become available, DND may require the screening to be carried out in accordance with both the NRC Manual and the new document.

TOR Scope description for Detailed Seismic Assessment

Include the following in the detailed Seismic Assessment:

1. A gathering and review of existing plans and other documentation on the building;
2. A review of the building's main structural resistance system and elements to both the applicable provincial code, and the NBCC 2015 seismic requirements;
3. Performing relevant on-site investigations and a condition survey of existing elements;
4. Involvement of a geotechnical engineer to address site classifications and foundation requirements;
5. A detailed structural analysis, in accordance to the applicable provincial code and the NBCC 2015, considering the proposed alterations and building occupancy;
6. Review of operational and functional systems (i.e. non-structural elements) as it relates to operational and life safety requirements. These include building systems such as canopies over exit ways, partitions in corridors and stairwells, roof parapets, mechanical and electrical systems, ceilings, and cladding at access/egress locations.;
7. Submission of a seismic assessment report including an evaluation of the sufficiency of the main building structure expressed as a percentage of the applicable provincial code, and the NBCC 2015. The report is also to include an assessment of the non-structural elements identified in 6.

The bulk of the seismic assessment will be done by a structural engineer, but other disciplines (e.g. geotechnical/electrical/mechanical/elevator/architecture) may be required to help coordinate with discipline-specific issues as required. Documents such as NRC's 'Guidelines for the Seismic Evaluation of Utilize existing building references and CSA-S832-2014 'Seismic Risk Reduction of Operational and Functional Components of Buildings' as reference documents.

Options assessment for seismic upgrades

If the main building structure does not meet 60% of either the applicable provincial code (while it continues to be based on NBCC 1995), or of NBCC 2015 requirements for new construction, upgrade options and approaches are to be investigated, so as to upgrade the seismic resistance of the main structure to at least the 60% level, but preferably to the 100% level. Select the optimal level of upgrade based on financial, functional, operational, security and client requirements. Incorporation of practical aspects of the building alteration is to be carefully considered. New and emerging technologies are also to be carefully considered. Upgrade options for non-structural items are also to be investigated. Options, cost estimates and recommended seismic upgrading approaches are to be documented.

Reference documents such as NRC's 'Guideline for Seismic Upgrading Techniques of Building Structures' and the 'CSA-S832-2014 Seismic Risk Reduction of Operational and Functional Components of Buildings' are considered as reference documents.

- Selection of an upgrade option (whether 60%, 100% or other level) will include consideration of the following, among others: Seismic performance level;
- Design, project management and construction costs;
- Constructability considerations;
- Client requirements;
- Operational requirements;
- Displacement of building occupants;
- Long-term flexibility requirements for the building;
- Architectural aspects of improvements;
- Heritage aspects.

Consideration of Seismic evaluation options will be documented in part by ensuring: Renovation plans contain the seismic assessment report name, author and date.

Where seismic upgrade work is not required, the existing level of seismic resistance expressed as a percentage of the current NBCC requirements is to be described on the renovation plans.

Where seismic upgrading work is included, details of the seismic improvements including the level of seismic upgrade in relation to the current NBCC requirements, seismic design loads and design philosophy are to be described on the renovation plans.

RS 5.2.3.14 Overview of Environmental Issues

Provide an overview of the status of environmental issues, including:

- Preamble for environmental issues – provided.
- Identification of previously-completed environmental assessment.
- Identification of suspect materials/equipment visually identified on-site.
- Recommendations for action if necessary.

RS 5.2.3.15 Overview of Project Grouping

This will be defined in detail in each individual TOR as generated for the Asset to be evaluated.

RS 5.2.3.16 Code Compliance Summary

Include the following information:

- Code compliance preamble - provided.
- Applicable code version in force at the time of: original construction, subsequent addition(s)/alteration(s), and major renovations.
- Applicable code version currently in force and the relevant building code data matrix information, including: building area, building height, storeys below grade, sprinklered, major occupancies, subsidiary occupancies, number of streets, construction type, required fire-resistance ratings, and fire alarm.
- Occupant loads, including: maximum potential occupant load based on occupancy type(s), and current occupant load.
- Adequacy of existing washroom fixtures to serve maximum potential occupant load.
- A listing of identified code issues, including:
 - o Code issues covered under individual Systems.
 - o General (multi-system) code design issues not already covered under individual Systems.
 - o Code issues identified in the code compliance paragraph of the latest version of the BPR (see 5.2.3.17).

Identify for each code issue the applicable reference (i.e. name of code, standard, policy, etc. and its clause, rule, etc.) – e.g. (NBC 3.3.1.17).

Include for each infraction a recommended corrective action in the form of a Requirement entered into the BCR Tool Survey and indicate if addressing the infraction could be delayed due to the age of the building.

RS 5.2.3.17 Building Performance Review

When completed, the latest BPR will have been entered under this heading in the BCR Tool Survey and each system will have a 'Satisfactory' or 'Unsatisfactory' rating. The assessor will review the section on tenant satisfaction and discuss unsatisfactory ratings with the Property Manager. Assessed and provide recommendations in the form of requirements to address ongoing issues associated with systems that have ongoing operational issues and include these in the BCR Survey.

Provide a description summarizing the issues and recommendations associated with 'Design Parameters & Deficiencies – current & future' (see 5.2.3.4).

RS 6.0 Survey Inspection Process

RS 6.1 Industry-Standard Tool Survey Reports

Ensure that the BCR Tool scan generate various types of reports. Three key report types that will be useful to the BCR team are:

- System/Requirement listing – a list of the asset's Systems and associated Requirement information.
- Condition - a condition report, available with or without pictures, giving a complete record of data and deficiencies entered into the BCR Tool Survey, including the asset narratives (printed off at the beginning of the inspection process, this report can also be used by the BCR inspection team to collect the building condition information).
- Technical Listing - a technical component list giving an overview of System condition and the total of requirements scheduled by year for each system.

RS 6.2 Industry-Standard Tool Surveys

When an assessor uses a single person to enter the data into the BCR Survey, it applies to every discipline. If each discipline lead is required to enter data, separate discipline specific BCR Tool Surveys can be provided. The assessor can specify which approach they wish to use when requesting a Survey for a building.

RS 6.3 Interview with the Asset Management Team

It is the responsibility of the assessor to schedule an interview with the asset management team at the beginning of every building inspection. This meeting will give the assessor an opportunity to validate the asset's system list, confirm the existence of operational problems, collect information about projects that have been completed since the last BCR and schedule escorted access to the building for the BCR team. During the winter months, systems located outside the asset may not be accessible or visible due to a layer of snow. In these circumstances the assessor may use the condition assessment provided by the property management team to prepare a preliminary schedule of proposed requirements. As part of each call-up, the assessor will return to the asset when weather permits, and confirm the condition of systems whose condition could not be assessed during the original visit. The assessor will update the BCR with changes required to reflect actual system condition. Do not delay delivery of the first version of the BCR on account of this.

RS 6.4 Capital versus Repair

The Definitions of Capital versus Repair used for Requirement classification in BCR Tool .

Before identifying an event as CAPITAL, the cost must be greater than \$25k, and one or more of the following rules must apply. Otherwise the event should be classified as a REPAIR:

Does the Requirement...

- Provide an increase in quality over original? The work is being done solely for the purpose of improving the functioning of the asset. If, however the work is being done due to the poor condition of the system and the replacement is inherently more functional or of higher quality due to being newer, then the event is a Repair Requirement.
- Improve operating efficiency? The work is being done solely for the purpose of improving the operating efficiency of the asset. If, however, the work is being done due to the poor condition of the system and the replacement is inherently more operationally efficient, then the event is a Repair Requirement.
- Add a new item, system or function to the asset? Adding accessibility capability such as door openers to an asset that does not have them would be considered a Capital Requirement, but replacing existing door openers that are in poor condition would be a Repair Requirement.
- Increase the area of the building? Adding a new wing or floor to the asset.

Modifications, Upgrades, Refits, Optimize, Refurbish, Aesthetics etc. These words do not automatically denote a Capital project, but here are some rules to guide you:

- If the optimizations, upgrade etc. are being performed on a technology-related system (Certain electrical systems, DDC Controls, Elevator controls etc.) the replacement event is probably an improvement in quality over the original as opposed to a replacement due to physical condition and should therefore be classed as Capital. If an element is being replaced for reasons other than poor condition or

obsolescence, its associated event should be classified as Capital.

- Most Lobby refurbishments/refits are for aesthetic purposes. These requirements normally occur before the end of the typical service life of most lobbies finishes, as there is a need to keep the 'street-appeal' of the asset fresh and new. These requirements should be classed as Capital.

RS 6.5 Requirement Classification

Requirement Structure

The BCR Tool Requirement subclasses should be the same for both Capital and Repair. Choose the Requirement classification to reflect its primary justification. (e.g. if the purpose of requirement is to remove asbestos, then the Regulatory Hazmat classification would be used, if the purpose of the requirement is to repair a system, then the Integrity-Reliability classification would be used).

Examples to aid in classification are provided below within the structure:

The requirement structure is:

- Integrity
 - o Lifecycle: Components or Systems that are approaching or have exceeded their useful life. (Examples: a 25-year old chiller that is approaching the end of its useful life and is recommended to be replaced within the next 5 years; a 15-year-old membrane roof that is prematurely aged and showing signs of wear and leaking)
 - o Reliability: Components or Systems that are not working as designed and/or cannot be depended upon, but have not yet exceeded their useful life. (Examples: a recently installed mechanical control that is not operating properly or functioning in an unpredictable manner. Breaches in the roof membrane or deteriorated window sealants).
- Optimization
 - o Abandoned: Equipment or Facility Systems that have been abandoned in place. (Examples: old cooling tower abandoned on the roof; old oil storage tank abandoned in the basement)
 - o Capacity: Problems with a System's ability to meet current demand. (Examples: heating equipment that cannot adequately cover its intended area)
 - o Energy: Conditions that adversely affect energy use (Examples: single-pane windows, lack of pipe insulation).
 - o Maintenance: Components or Systems that require routine maintenance (Examples: recalibration of thermostats, cleaning of ducts, cyclical painting, other aesthetic considerations)
 - o Mission: Components or Systems that do not meet the critical standards of the organization, per the guidelines provided by the client. (Examples: the facility needs to be operational on a 24/7 basis...therefore redundancy/backup components need to be added, e.g. dual-fuel boilers; plant adaptation, e.g. required additions/alterations associated with the conversion of a classroom facility into a dormitory; client driven security vulnerabilities)
 - o Sustainability: Improvements where components and/or Systems potentially have a sustainable opportunity (other than Energy based). (Examples: water conservation measures, use of building materials and resources based on sustainable procurement and with recycled/bio-based content, improvement of indoor environmental quality and considerations that reduce the impact of the building and its operations on the surrounding site.)
 - o Technological Improvements: Conditions that need to be made modern to meet current tech standards. (Examples: pneumatic to DDC; non-energy-based upgrades).
- Regulatory
 - o Accessibility: Conditions that violate accessibility guidelines, such as the Americans with Disabilities Act or Barrier-Free Design Standards. (Examples: non-accessible building entrances, plumbing fixtures, or door hardware)
 - o Building Code: Conditions that violate the client specified local and/or national Building codes (Examples: lack of backflow protection, insufficient ventilation, OSHA violations).
 - o HazMat: Regulatory issues associated with Asbestos, Lead, PCB, and other situations in which hazardous materials are known or suspected to be present in the Asset. (Examples: suspected asbestos pipe insulation or floor tiles)
 - o Life Safety: Conditions that pose an immediate danger to human life or safety. (Examples: blocked emergency egress, dead-end corridors, damaged and/or non-functional fire protection or emergency Systems).

Required Services Building Condition Report (BCR level 2) Terms of Reference

RS #	FEE summary to be supported by the Level of effort and schedule.		<div>✓ (Serv) Indicates a consultant service requirement.</div> <div>✓ x (Note) Indicates (noted) consultant service adjustment below.</div> <div>N/A indicates (not applicable) no consultant service requirement.</div>	Serv	See Note
RS 1.0			Background Information to be reviewed	✓	
			Building Condition Report	✓	
RS 1.1		1.1	Manual Process Using Word Files	✓	
RS 1.2		1.2	Automated Process Using BCR Tool	✓	
RS 1.3			BCR Tool Surveys	✓	
RS 2.0		2.0	General Requirements	✓	
		2.1	Thirty-Year Window of Capital and Repair Requirements	✓	
		2.2	Component/System list	✓	
		2.3	Requirements Structure	✓	
RS 3.0			Component/System Related Requirements	✓	
RS 3.1		3.1	Validation of the Component/System List	✓	
RS 3.2		3.2	Component/System Name	✓	
RS 3.3		3.3	Component/System Details	✓	
		3.3.1	• Expected Life Span	✓	
		3.3.2	• Last major action year	✓	
		3.3.3	• Measurement units	✓	
		3.3.4	• Quantity (of the Component/Systems)	✓	
		3.3.5	• Component/System narratives	✓	
RS 3.4		3.4	System Narratives	✓	
		3.4.1	• Component/System description	✓	
		3.4.2	• Component/System Condition & Anticipated replacement date	✓	
		3.4.3	• BCR Condition Narratives	✓	
RS 3.5		3.5	Component/System Inspection & Evaluation Criteria List	✓	

RS 3.6		3.6	Establishing Component/System Condition	✓	
		3.6.1	Establishing Service Condition factors for each Component/system		
RS 3.7		3.7	Required Component/System Photographs	✓	
RS 4.0			Event Related Requirements	✓	
RS 4.1		4.1	Event Details	✓	
		4.1.1	<ul style="list-style-type: none"> Brief Event Description 	✓	
		4.1.2	<ul style="list-style-type: none"> Event Narratives 	✓	
		4.1.3	<ul style="list-style-type: none"> Current Event Year 	✓	
		4.1.4	<ul style="list-style-type: none"> Estimated Event Cost 	✓	
RS 4.2		4.2	Requirement Descriptions	✓	
		4.2.1	<ul style="list-style-type: none"> Implication of Requirement Deferral 	✓	
		4.2.2	<ul style="list-style-type: none"> Closing a Completed Requirement 	✓	
RS 4.3		4.3	Requirement Event Photographs	✓	
RS 5.0			Asset Data Requirements as they relate to BCR Tool	✓	
RS 5.2		5.2	Asset Details	✓	
		5.2.2	Asset Photographs	✓	
		5.2.3	Asset Narratives	✓	
		5.2.3.1	<ul style="list-style-type: none"> BCR Project Team and Documents 	✓	
		5.2.3.2	<ul style="list-style-type: none"> Building History 	✓	
		5.2.3.3	<ul style="list-style-type: none"> BCR Executive Summary 	✓	
		5.2.3.4	<ul style="list-style-type: none"> Design Parameters & Definitions – current & future 	✓	
		5.2.3.5	<ul style="list-style-type: none"> Overview of Architectural & Structure Condition 	✓	
		5.2.3.6	<ul style="list-style-type: none"> Overview Site Condition 	✓	
		5.2.3.7	<ul style="list-style-type: none"> Overview of V & H Trans Cond 	✓	
		5.2.3.8	<ul style="list-style-type: none"> Overview of Mechanical Systems Condition 	✓	
		5.2.3.9	<ul style="list-style-type: none"> Overview of Electrical Systems Condition 	✓	
		5.2.3.10	<ul style="list-style-type: none"> Comp w Air Quality Targets 	✓	
		5.2.3.11	<ul style="list-style-type: none"> Regulatory Testing Confirmation 	✓	
		5.2.3.12	<ul style="list-style-type: none"> Compliance with Accessibility Standards 	✓	

		5.2.3.13	• Overview of Seismic Screening	✓	
		5.2.3.14	• Overview of Environmental Issues	✓	
		5.2.3.15	• Overview of Project Grouping	✓	
		5.2.3.16	• Code Compliance Summary	✓	
		5.2.3.17	• Building Performance Review		
RS 6.0		6.0	Survey Inspection Process	✓	
		6.1	BCR Tool Survey Reports	✓	
		6.2	BCR Tool Surveys	✓	
		6.3	Interview with the Asset Management Team	✓	
		6.4	Capital versus Repair		
		6.5	Requirement Classification		
		GRAND TOTAL FEES		Excl. taxes + disbursements	
Scope definition and fee structure Template to be used for proposal submissions. Sample of Matrix template for the fee submission of Building Condition Reports (BCR) as per the Standing Offer Section IV - SOW. Standard level – 2 study.					